

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 2

REMARKS

I. Status of the Application.

Claims 1-7, 9, 11-16, 18 and 20 of the Application are currently pending. In the Office Action, the Examiner:

- (a) Rejects claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement;
- (b) Rejects claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention;
- (c) Rejects claims 1-3, 9, and 11 under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 5,040,262 to Albers et al. ("Albers"); and
- (d) Rejects claims 4-7, 12-16, 18 and 20 under 35 U.S.C. §103(a) as allegedly being obvious over Albers in view of U.S. Patent No. 4,141,754 to Frauenfeld ("Frauenfeld").

In this Response, Applicant respectfully submits that the following remarks incorporated herein overcome the Examiner's rejections to claims 1-7, 9, 11-16, 18 and 20, and respectfully requests reconsideration of the pending claims in view of these remarks.

II. The Rejection Of Claims 1-7, 9, 11-16, 18 And 20 Under 35 U.S.C. §112, First Paragraph, Should Be Withdrawn.

Applicant respectfully submits that the rejection of claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement, should be withdrawn in view of the language presently contained within the

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 3

specification. The Examiner alleges that that the specification does not provide support for the language "greater than zero pounds per square inch" as present in the rejected claims. (Office Action, p. 2). Applicant respectfully disagrees with the conclusion because the specification explicitly supports the "greater than zero pounds per square inch" limitation. For example, the specification currently states that "'Low pressure' comprises a pressure of less than about 50 psi" (Application, paragraph 0012) and further states that "In one of the embodiments, the low-pressure cleaning system comprises a pressure source ... that allows air to exit out of the discharge tube at a pressure of less than about 50 pounds per square inch...." (Application, paragraph 0006). Applicant respectfully submits that "less than about 50 psi" encompasses all pressures from 0 psi to about 50 psi, including pressures in the range of "greater than zero pounds per square inch" and "less than 50 pounds per square inch," as claimed in claims 1-7, 9, 11-16, 18 and 20. Accordingly, Applicant respectfully submits that the rejection of claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. § 112, first paragraph, is overcome and should be withdrawn.

III. The Rejection Of Claims 1-7, 9, 11-16, 18 And 20 Under 35 U.S.C. §112, Second Paragraph, Should Be Withdrawn.

Applicant respectfully submits that the rejections of claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention, should be withdrawn. The Examiner alleges that claims 1 and 12 are indefinite because it was unclear whether the pressure is 50 psi above atmospheric pressure or 50 psi. (Office Action, p. 2). Applicant respectfully submits that all references to "pounds per square inch" or "psi" in the

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 4

Application refer to pounds per square inch above atmospheric pressure. One skilled in the art would appreciate from the disclosure that the pressure measurement was pounds per square inch above atmospheric pressure. Accordingly, Applicant respectfully submits that the Application is sufficiently clear as to the references to pressures, and that the rejection of claims 1-7, 9, 11-16, 18 and 20 under 35 U.S.C. § 112, second paragraph, is overcome and should be withdrawn.

IV. The Rejection Of Claims 1-3, 9 And 11 Under 35 U.S.C. §103(a) As Being Obvious Over Albers Should Be Withdrawn.

Applicant respectfully submits that the rejection of claims 1-3, 9 and 11 under 35 U.S.C. §103(a) should be withdrawn because Albers does not disclose, teach or suggest all of the limitations of claims 1-3, 9 and 11. Three criteria must be met to establish a *prima facie* case of obviousness: (i) there must be some suggestion or motivation to combine the teachings of two or more prior art references; (ii) there must be a reasonable expectation of success; and (iii) "all of the claim limitations must be taught or suggested by the prior art." MPEP §§ 2142, 2143 and 2143.03 (citing *In re Royka*, 490 F.2d 981, 985 (C.C.P.A. 1974); *see also In re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991)). The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. MPEP § 2143 (citing *Vaeck*, 947 F.2d at 493).

Applicant respectfully submits that Albers fails to disclose, suggest or teach a method of cleaning exposed heat exchanging coils with "a low-pressure cleaning system," that causes "air to exit the second end of the discharge tubes (of the low-pressure cleaning system) at a pressure less than about 50 pounds per square inch but greater than zero pounds per square inch." The Examiner states that "Albers teach (sic) the pressure in the nozzle of 2 bar which is equivalent to

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 5

29 psi." (Office Action, p. 3). Applicant does not dispute that Albers teaches that the fluid enters into the nozzle at a pressure of 2 bars, but rather, is pointing out that nothing in Albers actually teaches or suggests what pressure the fluid exits the nozzle. Claim 1 does not claim what pressure the air enters the discharge tube of the cleaning system. Instead, claim 1 claims that the air exits the discharge tube "at a pressure less than about 50 pounds per square inch but greater than zero pounds per square inch."

Assuming for the sake of argument that the fluid of Albers exits the nozzle at the same pressure it enters (despite the fact there is no teaching or suggestion to support this contention), Albers still does not disclose, teach or suggest "operating the low-pressure cleaning system to cause air" (claim 1) "to exit out of the discharge tube at less than about 5 pounds per square inch but greater than zero pounds per square inch," as claimed in dependent claim 3. The Examiner cites column 3, lines 1-2 of Albers, which states that the pressure upstream of the nozzles should be 2 bars (equivalent of 29 psi), to support the conclusion of claim 3 being obvious. Applicant fails to see how a disclosure of liquid passing upstream of the nozzle at a pressure of 29 psi teaches or suggests the step of causing air to exit "the discharge tube at less than about 5 pounds per square inch but greater than zero pounds per square inch," as claimed in claim 3. Thus, even if it is assumed that the fluid of Albers exits the nozzle at the same pressure it enters the nozzle (2 bars), Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claim 3 because nothing in Albers discloses, teaches or suggests the claimed pressure range of claim 3.

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 6

Applicant also respectfully submits that the Examiner acknowledges that Albers does not disclose, teach or suggest a method of cleaning exposed heat exchanging coils with "a low-pressure cleaning system" that cause "air to exit the second end of the discharge tube . . . at a velocity greater than 180 miles per hour, and a volume of greater than 440 cubic feet per minute," as claimed in claim 1. The Examiner stated "[i]n reference to claims 1, 9, and 11, Albers fails to teach the recited volume and velocity." (Office Action, p. 3). Accordingly, Albers, standing alone, is not sufficient to establish a *prima facie* case of obviousness because Albers does not teach or suggest all the limitations of the claims as required. Despite Albers not teaching or suggesting all the limitations of the claims, the Examiner for unsubstantiated reasons has determined that "it would have been within the level of the skilled artisan to increase the velocity and volume (of Albers) in order to effectively remove contaminants from the heat exchange surfaces." (Office Action, p. 3). Applicant respectfully disagrees with this conclusion. (see MPEP § 2143.03)

Applicant respectfully submits that the Examiner cannot merely conclude it would have been obvious to one skilled in the art to change the volume and velocity of Albers, but rather, the Examiner has to show that there is some general motivation or suggestion to do this. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Id.* (citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)). Here, the Examiner seems to be

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 7

claiming that the motivation or suggestion comes from the knowledge of one skilled in the art to increase the velocity and volume of Albers to fall within the claimed ranges in order to effectively remove contaminants from the heat exchange surfaces. (Office Action, p. 3). However, the Examiner fails to offer a reason why the skilled artisan would be motivated to change the volume or velocity above what is already disclosed in Albers. In fact, Albers actually motivates one skilled in the art to keep the velocity low and not to increase it. Albers specifically states that "lower flow rates often make it unnecessary to sound insulate the section that drives the soot-removal blower," which leads to the benefit of not having to incur the expense of sound proofing materials or additional blowers. (Col. 1, 11. 63-69; Col. 2, 11. 1-2). Thus, one skilled in the art would not be motivated to increase the velocity because any increase would lead to an increase in cost.

Moreover, the Examiner has failed to demonstrate why one skilled in the art would think that the disclosed volume of the nozzles and the flow rates of Albers were inadequate in cleaning the heat exchangers. There would have to be some inadequacies in Albers for one of ordinary skill in the art to be motivated to modify it. In other words, if Albers already cleans the soot of the heat-emitting surfaces and does so in a manner that saves costs (i.e., lower velocity means no need for sound proofing materials), then there would be no reason for one skilled in the art to increase the velocity or volume of liquid emitted from the nozzles of Albers. Accordingly, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness because the Examiner has not established one skilled in the art would be motivated to modify Albers to come up with the claimed invention.

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 8

Applicant respectfully submits that Albers fails to disclose, teach, or suggest a method of cleaning an exposed heat exchanging coil that comprises all of the following steps "providing a low-pressure cleaning system having ... a pressure source ... and a discharge tube," and "operating the low-pressure cleaning system to cause air to exit the second end of the discharge tube at a pressure less than about 50 pounds per square inch but greater than zero pounds per square inch, at a velocity greater than about 180 miles per hour, and a volume of greater than 440 cubic feet per minute," as claimed in claim 1. Accordingly, Applicant respectfully submits that the rejection of claim 1 under 35 U.S.C. § 103(a) as being obvious should be withdrawn and this claim should be allowed. Moreover, Applicant respectfully submits that the rejections of claims 2-3, 9 and 11 should be withdrawn because they each depend from allowable base claim 1. "If an independent claim is not obvious under 35 U.S.C. §103, then any claim depending therefrom is not obvious." MPEP § 2143.03 (citing *In re Fine*, 837 F.2d 1382, 1385 (C.C.P.A. 1970)). Additionally, even if the Examiner determines that claim 1 is not allowable, dependent claim 3 should only be objected to as being dependent on a rejected base claim because Albers does not disclose, teach or suggest operating the low-pressure cleaning system to cause the air "to exit out of the discharge tube at less than about 5 pounds per square inch but greater than zero pounds per square inch."

V. The Rejection Of Claims 4-7, 12-16, 18 And 20 Under 35 U.S.C. §103(a) As Being Obvious Over Albers In View Of Frauenfeld Is Overcome And Should Be Withdrawn.

Applicant respectfully submits that the rejection of claims 4-7, 12-16, 18 and 20 under 35 U.S.C. § 103(a) as allegedly being obvious over Albers in view of Frauenfeld should be

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 9

withdrawn because Albers and Frauenfeld fail to disclose, teach or suggest all of the limitations of claims 4-7, 12-16, 18, and 20. As discussed above, Albers alone fails to disclose, teach or suggest a method for cleaning an exposed heat exchanging coil that comprises the steps of "providing a low-pressure cleaning system" and "operating the low pressure cleaning system to cause air to exit the second end of the discharge tube of the low-pressure cleaning system at a pressure of less than 50 pounds per square inch but greater than zero pounds per square inch, a velocity of greater than 180 miles per hour, and a volume of greater than 440 cubic feet per minute", as claimed in claim 1 of the Application. Applicant notes that claim 12 contains the same limitations and thus, Applicant respectfully submits that Albers fails to teach, suggest or disclose all of the limitations of claim 12 for the same reasons.

Applicant also respectfully submits that Frauenfeld alone does not teach or suggest all the limitations of independent claims 1 and 12. Frauenfeld teaches an apparatus for cleaning the heat exchanging surfaces of the heat transfer plates of a rotary regenerative heat exchanger comprising a plurality of nozzles that supply cleaning fluid to the heat exchanger. (Col. 2, ll. 33-46). However, and similar to Albers, Frauenfeld does not disclose, teach or suggest a method for cleaning an exposed heat exchanging coil using a low-pressure cleaning system that causes air to exit the second end of the discharge tube of the low-pressure cleaning system at a pressure of less than 50 pounds per square inch but greater than zero pounds per square inch, a velocity of greater than 180 miles per hour, and a volume of greater than 440 cubic feet per minute, as claimed in claims 1 and 12 of the Application. Frauenfeld does not disclose, teach or suggest the volume or velocity of the cleaning solution that exits its nozzles. Rather, Frauenfeld actually

Commissioner of Patents

Serial No.: 10/645,445

Response Date March 22, 2006

Reply to Office Action dated September 22, 2005

Page 10

teaches a method of cleaning heat exchanging surfaces using "high pressure nozzles 76" supplied with cleaning liquid "at a pressure of 200 to 400 atm" and injection nozzles 3a, 3b, and 3c with a cleaning solution at a pressure of at least 4 atm. (Col. 3, ll. 45-51). Applicant respectfully submits that the widely accepted conversion of 1 atm of pressure is equivalent to approximately 14.696 psi, and using this conversion, the high pressures of "200 to 400 atm" as disclosed in Frauenfeld are equivalent to high pressures of approximately 2,939.2 to 5,878.4 psi and the lower pressure of 4 atm for injection nozzles 3a, 3b and 3c is at least 58.784 psi. Assuming the cleaning solution exits the nozzles at the same pressure, both disclosed pressures are higher and outside the range of "less than 50 pounds per square inch but greater than zero pounds per square inch," as claimed in claims 1 and 12. Thus, for these reasons and the reasons stated above, Applicant respectfully submits that Albers and Frauenfeld, whether considered alone or in combination with each other, do not teach, disclose or suggest a pressure of less than 50 pounds per square inch but greater than zero pounds per square inch, a velocity of greater than 180 miles per hour and a volume of greater than 440 cubic feet per minute as claimed in the methods of independent claims 1 and 12.

Applicant respectfully submits that if Albers and Frauenfeld, either alone or in combination with each other, do not disclose, teach, or suggest all of the claim limitations of independent claims 1 and 12, then Albers and Frauenfeld, either alone or in combination with each other, do not disclose, teach, or suggest all of the limitations of any claim depending from independent claims 1 and 12. "If an independent claim is not obvious under 35 U.S.C. § 103, then any claim depending therefrom is not obvious." MPEP § 2143.03 (citing *Fine*, 837 F.2d at

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 11

1385). Accordingly, Applicant respectfully submits that Albers and Frauenfeld, whether considered alone or in combination with each other, fail to disclose, teach, or suggest all of the limitations of claims 4-7, 12-16, 18 and 20 of the Application.

In addition, Albers and Frauenfeld, either alone or in combination with each other, do not teach a method of cleaning an exposed heat exchanging coil where the low-pressure cleaning system used causes air to exit the discharge tube at less than 5 pounds per square inch, but greater than 0 pounds per square inch, as claimed in claim 14 of the Application. As already explained above, Albers does not disclose, teach or suggest this limitation. Similarly, Frauenfeld only discloses, teaches and suggests pressures that fall outside of the range of "5 pounds per square inch but greater than 0 pounds per square inch." For example, Frauenfeld discloses supplying injection nozzles 3a, 3b and 3c with fluid at a pressure of at least 4 atm (58.784 psi) and high pressure nozzles 76 with fluid at a pressure of 200 to 400 atm (2,939.2 – 5,878.4 psi). (Col. 3, 11. 45-51). Accordingly, if claim 12 is not allowed, claim 14 should only be objected to for being dependent on a rejected base claim.

For all of these reasons, Applicant respectfully submits that the Examiner's rejection of claims 4-7, 12-16, 18 and 20 under 35 U.S.C. § 103(a) is overcome and should be withdrawn because Albers in view of Frauenfeld does not disclose, teach or suggest all of the limitations of these claims.

Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 12

VI. Applicant Petitions For An Extension Of Time And Requests Continued Examination.

Applicant hereby petitions for an extension of time of three (3) months, under 37 C.F.R. § 1.136(a), thereby extending the deadline for response to Wednesday, March 22, 2006. Applicant authorizes payment for this extension in the amount of \$510.00 to be charged to deposit account 09-0007. Applicant also requests continued examination by submitting a Request for Continued Examination transmittal form, by submitting this response and by petitioning that the \$395.00 filing fee be withdrawn from deposit account 09-0007. When withdrawing the total amount of \$905.00 for the RCE and extension of time, please reference the docket number of P00755-US-01 (21348.0001).

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Commissioner of Patents
Serial No.: 10/645,445
Response Date March 22, 2006
Reply to Office Action dated September 22, 2005
Page 13

CONCLUSION

For all of the foregoing reasons, it is respectfully submitted that Applicant has made a patentable contribution to the art. Favorable reconsideration and allowance of this Application, is therefore respectfully requested. In the event Applicant has inadvertently overlooked the need for payment of an additional fee, Applicant conditionally petitions therefor, and authorizes any deficiency to be charged to deposit account 09-0007.

Respectfully submitted,

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Enclosure: Fax Transmittal Sheet
RCE Transmittal Sheet
Change of Correspondence